

## WHAT IS CLAIMED IS:

Sub  
A5  
1. A method for recognizing a valid receiving path for demodulating received signals out of a plurality of receiving paths in a CDMA wireless telecommunication system, comprising the steps of:

receiving at least one set of signals through a transmission path, said set of signals being comprised of a predetermined number of received signals;

generating at least two spread codes each of which has its own delay time, said spread code being comprised of a predetermined number of spread code bits;

calculating at least two correlation values of said set of signals with said at least two spread codes; and

recognizing said path as a valid receiving path for demodulating said received signals based on said at least two correlation values.

2. A method according to claim 1, wherein said at least two correlation values are a peak correlation value and a correlation value other than said peak correlation value.

3. A method according to claim 2, wherein said step of recognizing said path as a valid receiving path comprises the steps of:

calculating a plurality of ratios of said peak correlation value to a plurality of correlation values other than said peak correlation value;

comparing said plurality of ratios with at least one predetermined comparison threshold value; and

recognizing said path as a valid receiving path for demodulating said received signals based on the result of comparisons of said comparing step.

4. A method according to claim 1, wherein said at least two correlation values are neighboring values.

5. A method according to claim 4, wherein said step of recognizing said path as a valid receiving path comprises the steps of:

calculating a plurality of ratios of a plurality of respectively neighboring correlation values;

comparing said plurality of ratios with at least one predetermined comparison threshold value; and

recognizing said path as a valid receiving path for demodulating said received signals based on the result of comparisons of said comparing step.

6. A method according to claim 1, wherein said step of recognizing said path as a valid receiving path is the step of recognizing said path as a valid receiving path for demodulating said received signals based on the difference between said at least two correlation values.

7. A method for recognizing a valid receiving path for demodulating received signals out of a plurality of receiving paths in a CDMA wireless telecommunication system, comprising the steps of:

receiving at least one set of signals through a transmission path, said set of signals being comprised of a predetermined number of received signals;

generating at least two spread codes each of which has its own delay time, said spread code being comprised of a predetermined number of spread code bits;

calculating at least two correlation values of said set of signals with said at least two spread codes;

forming a path waveform of said path represented as a correlation profile based on said at least two correlation

profile values;

determining whether there is a distortion on said path waveform; and

recognizing said path as a valid receiving path for demodulating said received signals based on the result of determination of said determining step.

8. A method according to claim 7, wherein said at least two correlation values are a peak correlation value and a correlation value other than said peak correlation value.

9. A method for recognizing a valid receiving path for demodulating received signals out of a plurality of receiving paths in a CDMA wireless telecommunication system, comprising the steps of:

receiving at least one set of signals through a transmission path, said set of signals being comprised of a predetermined number of received signals;

generating at least two spread codes each of which has its own delay time, said spread codes being comprised of a predetermined number of spread code bits;

calculating at least two correlation values of said set of signals with said at least two spread codes;

forming a path waveform of said path represented as a correlation profile based on said at least two correlation profile values;

comparing said peak correlation value with a predetermined path recognition threshold value;

determining whether there is a distortion on said path waveform; and

recognizing said path as a valid receiving path for demodulating said received signals based on the results of comparison of said comparing step and determination of said determining step.

10. A method according to claim 9, wherein said step of recognizing said path as a valid receiving path is a step of recognizing said path as a valid receiving path for demodulating said received path when it is determined that said peak correlation value is smaller than said predetermined path recognition threshold value and that there is no distortion on said path waveform.

11. A CDMA wireless telecommunication mobile station for receiving a set of telecommunication signals through a telecommunication path from a base station, comprising:

a spread code generator for generating at least two spread codes each of which has its own delay time, said spread codes being comprised of a predetermined number of spread code bits;

a correlator for calculating at least two correlation values of said set of signals with said at least two spread codes; and

a path recognizing unit for recognizing said path as a valid receiving path for demodulating said received signals based on said at least two correlation values.

12. A CDMA wireless telecommunication mobile station according to claim 11, further comprising a waveform distortion detector for determining whether there is a distortion on a path waveform of said path represented as a correlation profile, said correlation profile being formed based on said at least two correlation profile values.

13. A CDMA wireless telecommunication mobile station according to claim 12, wherein said at least two correlation values are a peak correlation value and a correlation value other than said peak correlation value.

14. A CDMA wireless telecommunication mobile station according to claim 13, wherein said waveform distortion detector determines whether there is a distortion on said path waveform of said path represented as a correlation profile based on a ratio of said peak correlation value to a plurality of correlation values other than said peak correlation value.

15. A CDMA wireless telecommunication mobile station according to claim 12, wherein said at least two correlation values are neighboring correlation values.

16. A CDMA wireless telecommunication mobile station according to claim 15, wherein said waveform distortion detector determines whether there is a distortion on said path waveform of said path represented as a correlation profile based on a plurality of ratios of a plurality of respectively neighboring correlation values.

17. A CDMA wireless telecommunication mobile station according to claim 12, wherein said waveform distortion detector determines whether there is a distortion on said path waveform of said path represented as a correlation profile based on a difference of said at least two correlation values.

18. A CDMA wireless telecommunication system comprising a mobile station for receiving a set of telecommunication signals through a telecommunication path from a base station, said mobile station comprising:

a spread code generator for generating at least two spread codes each of which has its own delay time, said spread codes being comprised of a predetermined number of

spread code bits;

a correlator for calculating at least two correlation values of said set of signals with said at least two spread codes;

a path recognizing unit for recognizing said path as a valid receiving path for demodulating said received signals based on said at least two correlation values; and

A5  
a waveform distortion detector for determining whether there is a distortion on a path waveform of said path represented as a correlation profile, said correlation profile being formed based on said at least two correlation profile values.

19. A CDMA wireless telecommunication system according to claim 18, wherein said at least two correlation values are a peak correlation value and a correlation value other than said peak correlation value.

20. A CDMA wireless telecommunication system according to claim 18, wherein said waveform distortion detector determines whether there is a distortion on said path waveform of said path represented as a correlation profile based on a ratio of said peak correlation value to a plurality of correlation values other than said peak correlation value.

Add A5